



A Case Study of the Lahore–Sialkot Motorway (M-11) Executed by Frontier Works Organization (FWO)

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Abstract— This paper analyzes HR and Communication Management practices on Lahore–Sialkot Motorway (M-11), a 91 km FW (Frontier Works Organization) project in Pakistan. Utilizing a case study approach and relying heavily on available project documentation, the focus is on HR planning, recruitment, training, performance and appraisal, reward systems, and the development of a formalized communication structure. Results showed that the adoption of a FW's military-based hierarchical framework, integrated contractor workforce management, prescribed and formalized HSE training, and a variety of communication systems, contributed to the successful completion of the project. Although some of the obstacles faced included a shortage of skilled labor, the remote nature of the project site, and language difficulties, these were solved with a few motivational incentives, the use of skilled labor with bilingual capabilities, and electronic coordination. Megaprojects in developing nations with an emphasis on digital HR, community engagement, and practice HR with real-time performance indicators and dashboards is the focus of the recommendations.

Keywords— Human Resource Management, Communication Management, Lahore-Sialkot Motorway, FWO, Infrastructure Megaprojects, Stakeholder Engagement, Safety Training.

I. INTRODUCTION

- Overview of the Lahore–Sialkot Motorway Project

Lahore–Sialkot Motorway (M-11) is a 91 Km stretch of road designed to connect Sialkot and Lahore. As Sialkot is one of the main industrial hubs, M-11 is expected to provide a mechanism to facilitate and enhance trade in the region. The M-11 is part of the larger picture of the Pakistan Government to expand motorways across Pakistan. The goal is to enhance intra national trade and movement across the country by connecting further flung areas to the principal urban centers. The M-11 is a good example of the art and science of modern engineering to cater to both functionality and safety in the long term.

- Executing Agency: Frontier Works Organization (FWO)

The Frontier Works Organization (FWO) was the main contractor for this project. FWO has extensive experience, a well-structured command chain, and a disciplined workforce, with the requisite skills. Their safety, quality, and efficiency work ethos fit perfectly within the project's timelines.

- Project Scope, Length, Timelines, and Strategic Importance

The primary aim of this project was to construct an access controlled, four-lane motorway. This was the main feature and was supported by the other requisite features and infrastructure, which brought services demanded by the regulating authority of the motorway. The project promoted trade, alleviated traffic congestion, and integrated the region's economy.

Research Objectives

1. Analyze M-11 Project HR planning, recruiting, training, and performance assessment.
2. Examine intra and inter-project stakeholder communications.
3. Understand HR and communication issues and identify solutions.
4. Understand lessons for the future that can be drawn from this case and applied to other mega infrastructure projects.

II. RESEARCH METHODOLOGY

This study adopts qualitative case study methodology and uses secondary sources such as completion reports of the project, documents of FWO, documents

of NHA, and the concerned literature. Content analysis was used to identify themes of HR and Communication.

- PROJECT ORGANIZATIONAL STRUCTURE

FWO Project Hierarchy and Functional Departments

FWO segmented its operations along a militarized chain of command. A Project Director was at the highest point, followed by Deputy Project Directors, Section In-Charges, and heads of departments devoted to engineering, planning, procurement, HR, finance, and HSE services.

The departments covered functional aspects of the projects:

1. Engineering & Design: Surveys, designs, QA/QC.
2. Construction & Execution: Earthworks, bridges, pavement structures.
3. Procurement & Logistics: Purchase, manage suppliers, deliveries.
4. HR Department: Staff, payment, grievances, trainings.
5. Finance Department: Plans, spending, payments to contractors.
6. HSE Department: Health and safety, risk, incidents.

Reporting Mechanism and Responsibilities

After the completion of a construction task, all engineers were required to report to the relevant Section In-Charge. The Section In-Charge directed the work of the Deputy Project Director, who in turn reported to the Project Director. The Project Director was required to report to the FWO headquarters and NHA. The organizational design resulted in little to no overlap of responsibilities for employees.

Role	Responsibility
Project Director	Strategic decisions, resource allocation, stakeholder coordination
Deputy Directors	Tactical supervision, compliance enforcement
Engineers/Supervisors	Daily site operations, technical checks, documentation
HR & HSE Officers	Workforce management, safety monitoring, training execution

- HUMAN RESOURCE MANAGEMENT FRAMEWORK

The HR system aligned military discipline with civilian labor management. It incorporated the following key aspects:

1. Manpower forecasting
2. Contractor workforce integration
3. Welfare management

4. Grievance handling mechanisms

They aimed to provide employees with the skills they need to achieve the project objectives, while keeping them motivated.

- HR PLANNING & WORKFORCE FORECASTING

Manpower Estimation and Deployment Strategy

Workforce planning was based on activity schedules. Deployment occurred in phases:

Phase	Workforce Type
Initial	Survey teams, design engineers, geotechnical specialists
Middle	Heavy machinery operators, asphalt crews, structural workers
Final	Finishing crews, safety teams, documentation support

Shift arrangements ensured 24/7 availability for critical operations (asphalt, bridges).

Local vs. Non-Local Hiring

Criteria	Local Hiring	Non-Local Hiring
Priority	Basic labor skills	Specialized skills (surveyors, machine operators)
Advantage	Lower cost, goodwill, less conflict	Technical reliability

Balanced composition minimized community conflicts while ensuring technical quality.

- RECRUITMENT & SELECTION

Hiring Processes Followed by FWO

Merit-based process: the first stage is job analysis. Stages two to five include advertisement, screening, interviews, and background verification, respectively. For site positions: walk-in interviews were held. Contracted manpower. Document verification included CNIC, health certificate verification, and police clearance verification.

Integration of Contractor/Subcontractor Workforce

Subcontractors provided specialized teams for work on bridges, asphalt, electrification, and drainage. Integration was achieved through:

1. Contract Clauses
2. Performance Audits
3. Daily Coordination Meetings
4. Joint Orientation Programs
5. Integrated Reporting Systems

- TRAINING & DEVELOPMENT

Safety (HSE) Training and Technical Training

1. PPE, hazard recognition, emergency response, and safe operation of machinery are all part of the mandatory induction training.
2. Daily toolbox talks.

3. Operators, plant personnel, lab technicians, and surveyors receive advanced training.
4. Reduced accident rates with refresher training.

Orientation and Supervisor Training

1. Orientation to project goals, the organization, and the code of conduct.
2. Training for supervisors on conflict resolution, motivation, reporting, risk management, and other related topics.

- PERFORMANCE MANAGEMENT

KPIs, Reporting Schedules, Productivity Monitoring

KPIs measured the:

1. Scheduled excavation amounts
2. Total volumes of concrete poured
3. Total pavement laid
4. Utilization of machinery
5. Safety compliance

Corrective actions were taken due to daily and weekly reports while, monthly evaluations determined shortfalls.

Reward and Penalty Systems

Incentive Type	Examples
Monetary	Bonuses, overtime pay
Non-monetary	Appreciation certificates, added responsibility
Penalties	For safety violations, absenteeism, negligence

Balanced system-maintained discipline and accountability.

- COMPENSATION & BENEFITS

Salary Structure, Welfare Facilities, Insurance & Medical Coverage

1. High pay + overtime.
2. Provision of housing, sustenance, clean water, and adequately spaced rest areas.
3. Coverage for groups, accidents, and on-site first-aid stations.

Adherence to Labour Regulations

Adherence to regulations concerning wage floors, ceilings for working hours, and social safety provisions. Openness of records avoided litigation.

- HR CHALLENGES & MITIGATION STRATEGIES

Challenge	Mitigation Strategy
Skilled labor shortage	Targeted recruitment, skill development programs, competitive pay
Extreme weather & remote site conditions	Better living facilities, rest schedules, wellbeing programs
Staff turnover	Performance incentives, transparent communication, conflict resolution

- COMMUNICATION MANAGEMENT

Communication management ensured that information was transmitted seamlessly between engineers, workers, contractors, NHA and FWO HQ.

Internal and External Communication Flows

Internal: formal meetings and reports; digital tools, and daily briefings

External: NHA, consultants, district administrations, community representatives

Stakeholder Communication Matrix

Sender	Receiver	Channel	Frequency
Site Engineer	Section In-Charge	Daily log	Daily
Section In-Charge	Deputy Director	Report	Weekly
Project Director	FWO HQ / NHA	Formal letter/meeting	Monthly

- STAKEHOLDER IDENTIFICATION & ENGAGEMENT

Key stakeholders:

1. NHA: Client and regulator
2. FWO HQ: Strategic oversight
3. Consultants: Quality assurance
4. Contractors: Specialized execution
5. District Administration: Land, security, utilities
6. Local communities: Grievances (dust, noise, access disruptions)
7. Effective engagement ensured conflict-free progress.

- INTERNAL COMMUNICATION MECHANISMS

1. Daily progress meetings
2. Site briefings
3. Toolbox talks (HSE)
4. Standardized reporting formats (daily sheets, quality checklists, HSE logs)
5. Digital tools: WhatsApp groups, shared spreadsheets, GPS tracking, project management software

- EXTERNAL COMMUNICATION MECHANISMS

1. Regular coordination meetings with NHA (design approvals, inspections, payments)
2. Local administration coordination (security clearance, traffic diversion, public grievances)
3. Controlled media communication
4. Public awareness campaigns
5. Grievance handling committees

- DOCUMENTATION & REPORTING

Documentation included technical instructions, meeting minutes, inspection reports, correspondence logs. Digital archiving improved accessibility and supported audits.

- COMMUNICATION BARRIERS & SOLUTIONS

Barrier	Solution
Language differences (local workers vs. external staff)	Bilingual supervisors
Remote location network issues	Satellite communication backups
Delays in reporting	Digital tools + standardized schedules

- INTEGRATION OF HR & COMMUNICATION

Effective workforce ready HR planning. Good workforce ready planning. Good workforce ready planning, good HR planning and good workforce ready planning:

1. Coordinated total workforce.
2. Less miscommunication
3. Positive outcome on projects and safety standards.

- LESSONS LEARNED

1. Improved accountability and better decisions stemming from a more thorough command authority.
2. Increased workforce competency from more frequent training.
3. Improved safety and no incidents due to better and timely communication.
4. A more accurate and direct workforce integration from structured contracts and joint workforce orientation.
5. More direct workforce and less community engagement from regional workforce utilization.

III. CONCLUSION & RECOMMENDATIONS

Summary

Lahore - Sialkot Motorway project excellent HR planning, solid and structured communications, effective engagement with project stakeholders. Excellent safety training and a discipline/purpose oriented culture by FWO led to timely work.

Future Projects

More training in safety and engaging safety/operational KPI oriented dashboards.

Better bilateral supervision in a diversified workforce.

Better engagement with impacted community members as an effective and direct integration of workforce.

A more direct and structured workforce from contracts and workforce orientation.

Regional workforce utilization plans with a more direct and structured workforce from contracts and workforce.

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